



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/612,380

07/02/2003

Peter Willimowski

854G-000160

3696

27572 7590 10/02/2007  
HARNESSE, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
BLOOMFIELD HILLS, MI 48303

EXAMINER

CHU, HELEN OK

ART UNIT

PAPER NUMBER

1745

MAIL DATE

DELIVERY MODE

10/02/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/612,380

Applicant(s)

WILLIMOWSKI ET AL.

Examiner

Helen O. Chu

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 34 is/are pending in the application.
- 4a) Of the above claim(s) 2-4 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicant's Amendments have been received on July 13, 2007. Claims 1 and 2 have been amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

### ***Election/Restrictions***

3. Newly submitted amended claims 2-5, 34 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claim 2 recites a "fourth flow path operable to supply a third anode reactant feed stream to said third flow path without said third anode reactant fee stream flowing through an anode section prior to reaching said third flow path" which corresponds to Figure 5, the original claims corresponds to Figure 1 which is a different embodiment, as it is suggested in the Specification (Paragraph 10-14)

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 2-5, 34 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Claim Rejections - 35 USC § 112***

4. The rejections under 35 U.S.C. 112, first paragraph, on claims 1-10 and 34 are withdrawn because Applicant has amended the claims.

5. The rejections under 35 U.S.C. 112, second paragraph, on claims 1-10 and 34 are maintained. The rejection is repeated below for convenience.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, §-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation "operational state" is unclear to the Examiner. The specification does not clearly convey the meaning of an operational state. For purposes of compact prosecution the Examiner will interpret the term "operational state" as when the valve is opened

### ***Claims Analysis***

7. The term "operational state" is interpreted as the valve to be fully opened which would not impede flow communication

8. The term "venting" is to discharge.

9. The term "effluent" is something that flows out and forth. The term "valve" is any device that would regulate the flow of a fluid.

10. Therefore, any device that can function the same way is a valve.

### ***Claim Rejections - 35 USC § 102***

11. The rejections under 35 U.S.C 102 (b), on claims 1-9 and 34, as anticipated by Cheron are withdrawn because Applicant amended the claims

Art Unit: 1745

12. The rejections under 35 U.S.C 102 (e), on claims 1-9 and 34, as anticipated by Skala et al. are withdrawn because Applicant amended the claims

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1, 5-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheron (US Patent 4,243,731).

Regarding claims 1, 6, 8-9 the Cheron reference discloses a fuel cell stack (Figure 1, Component 1) with hydrogen supplying the inlets (Column 3, Lines 15-25) of the fuel cells and discharged to the outlets. Each inlet comprises a valve (Figure 8, 12a, 22a), which regulates the flow of the hydrogen (Applicant's first, second flow paths and respective valves (Components 12, 22, 32), and the hydrogen discharge joins to one flow path and a discharge valve (Applicant's third flow path and valve, Figure 8). It is inherent that hydrogen is supplied to the anode section of the fuel cell and if there are "n" numbers of fuel cells there must be also "n" numbers of cathodes. At  $t_0$ , if all the valves are closed (components 14, 24, 34) all the anode reactant feed enters into one flow path directed by f (Column 3-10), that is, the entire anode reactant feed will go through this same flow path.

In regard to claims 5, 7, the valves are proportional control valves which monitors the flow rate dependent on pressure (Column 4, Lines 36-45)

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The rejection under 35 U.S.C 103 (a), on claim 10, as unpatentable by Cheron is withdrawn because Applicant amended the claim 1.

17. The rejection under 35 U.S.C 103 (a), on claim 10, as unpatentable by Skala is withdrawn because Applicant amended the claim 2.

18. Claim 10 is rejected under 35 U.S.C. 103(a) as being obvious by Cheron (US Patent 4,243,731).

The Cheron reference discloses the claimed invention except for each anode sections are from a different fuel cell stack. It would have been obvious to one having ordinary skill in the art at the time the invention was made to separate the fuel cell stack, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ. 177, 179.

***Response to Arguments***

19. Applicant's arguments filed 7/17/2007 have been fully considered but they are not persuasive.

Applicant's principal arguments are:

A) The operational state would include both the valve being open and closed. Other valves may have intermediate operational states wherein the valve is not 100% open nor 100% closed and, thus "operational state" would include such a position...Additionally, the subject matter of claims 1 and 34 further indicates that the valve does not impeded flow communication regardless of an operational state of the valve. As such, the flow communication between the outlets of the first and the second anode sections through the third flow path can proceed no matter what the position or operational state the valve is in.

B) Claim 1 is not anticipated by Cheron reference...in Cheron reference there are two flow paths for each anode section through which two separate anode reactant feed streams can be supplied to the associate chamber. Neither regulating means 12, 22, 32 and bypass circuits 14, 24, 34 are only operable to regulate the reactant feed streams flowing therethrough, but these feed streams are not the only feed streams flowing into the associated chamber 10, 20, 30 through the inlet orifices.

In response to Applicants arguments, please consider the following:

A) The claim recites "valve not impeding flow communication between said outlets of said first and second anode sections through said third flow path regardless of an operational state of the valve." On Page 11-12, Paragraph 25 states, "The

discontinuous venting operation (of valve 54) usually will require a slight increase in the flow rate of anode reactant to the first and/ or second fuel cell stacks 22 and 24 through valves 48 and 50 in order to keep the anode pressure substantially constant." One of ordinary skill would understand if the flow path is not vented this would cause pressure differentials across the flow path and the anode side, thus, causing disruption to the flow. Therefore, if the vents are continuously closed, the closed valve would impede the flow communication of the anode effluent.

B) Claim 1 is anticipated by the Cheron reference. The recitation of the claims define two different anode reactant streams "first anode reactant feed stream being the only anode reactant feed stream flowing into said first anode section through the said first inlet" and "second anode reactant feed stream being the only anode reactant feed stream flowing into said second anode section through said second inlet" The Applicants further recites "first flow path operable to modulate an entire flow of the first anode reactant feed through said first flow path" and also "second flow path operable to modulate an entire flow of the second anode reactant feed through said second flow path." Thus, the Examiner is interpreting this as a feed (component 2) separated by two flow paths, each individual paths has a device (component 12, 22, 32) operable to modulate the entire flow (that enters into that specific flow path) of anode reactant fee stream through the flow path at  $t_0$ . This is disclosed by the Cheron reference, hence, the Applicants invention holds no novelty over the prior art.



20. Applicant's arguments with respect to claims 2 have been considered but are moot in because these claims are withdrawn by original presentation.

### ***Conclusion***

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOC

  
TRACY DOVE  
PRIMARY EXAMINER  
9/07